

# GSOE9510

Ethics and Leadership in Engineering

Term 1, 2023

Ethics and Leadership in Engineering

GSOE9510 | 6 Units of Credit

## Course Overview

### Staff Contact Details

#### Convenors

Name	Email	Availability	Location	Phone
Aruna Seneviratne	<a href="mailto:a.seneviratne@unsw.edu.au">a.seneviratne@unsw.edu.au</a>	Monday 1200-1500	G17 - 304	02 9385 5389

### School Contact Information

**Consultations:** Lecturer consultation times will be advised during the first lecture. You are welcome to email the tutor or laboratory demonstrator, who can answer your questions on this course and can also provide you with consultation times. **ALL email enquiries should be made from your student email address with ELEC/TELExxxx in the subject line; otherwise they will not be answered.**

**Keeping Informed:** Announcements may be made during classes, via email (to your student email address) and/or via online learning and teaching platforms – in this course, we will use Moodle <https://moodle.telt.unsw.edu.au/login/index.php>. Please note that you will be deemed to have received this information, so you should take careful note of all announcements.

### Student Support Enquiries

[For enrolment and progression enquiries please contact Student Services](#)

### Web

[Electrical Engineering Homepage](#)

[Engineering Student Support Services](#)

[Engineering Industrial Training](#)

[UNSW Study Abroad and Exchange](#) (for inbound students)

[UNSW Future Students](#)

## Phone

(+61 2) 9385 8500 – Nucleus Student Hub

(+61 2) 9385 7661 – Engineering Industrial Training

(+61 2) 9385 3179 – UNSW Study Abroad and UNSW Exchange (for inbound students)

## Email

[Engineering Student Support Services](#) – current student enquiries

- e.g. enrolment, progression, clash requests, course issues or program-related queries

[Engineering Industrial Training](#) – Industrial training questions

[UNSW Study Abroad](#) – study abroad student enquiries (for inbound students)

[UNSW Exchange](#) – student exchange enquiries (for inbound students)

[UNSW Future Students](#) – potential student enquiries

- e.g. admissions, fees, programs, credit transfer

## Course Details

### Units of Credit 6

### Summary of the Course

The role of engineering in society; assessment of technological innovations. Engineering ethics principles and practice; an introduction to ethical systems; the application of ethical frameworks to engineering practice and related technologies; codes of ethics in the professions. Social, legal, environmental and economic considerations; sustainability. Theories of leadership; leadership of teams. Organisation behaviour.

### Course Aims

This course is the final professional education course of the degree program and aims to help students to understand the importance and necessity of professional and ethical responsibility. The course also focuses on engineering leadership in the context of professional engineering roles.

The course aims to equip students with the ability to:

- Recognise and respond to ethical issues;
- Exercise ethical thinking and apply ethical judgement; and
- Develop leadership capability with an engineering mindset.

### Course Learning Outcomes

1. Identify ethical problems in the context of engineering practice and identify ethical decision models
2. Apply the concepts embodied in codes of ethical conduct to professional situations
3. Demonstrate critical thinking skills and attitudes for engaging in respectful and inclusive dialogue with their peers and assess conflicting views of ethical issues
4. Explain effective leadership roles and strategies and apply them in a variety of workplace settings
5. Exhibit persuasive verbal communication skills, and effective teamwork evidenced by strong and sustained contributions from every member

Week	Assessment Methods	Release Date	Submission Date	Learning Outcomes				
	PART A: Fundamentals of Ethics			1	2	3	4	5
1	Short-Answer & Multiple - Choice Test 1 (3%)	18/02/21 (5pm)	22/02/21 (5pm)	<input type="checkbox"/>	-	-	-	<input type="checkbox"/>
2	Short-Answer & Multiple - Choice Test 2 (3%)	25/02/21 (5pm)	01/03/21 (5pm)	<input type="checkbox"/>	<input type="checkbox"/>	-	-	<input type="checkbox"/>
3	Short-Answer & Multiple - Choice Test 3 (3%)	04/03/21 (5pm)	08/03/21 (5pm)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-	<input type="checkbox"/>
4	Homework Assessment 1 (15%)	11/03/21 (5pm)	15/03/21 (5pm)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-	<input type="checkbox"/>

Week	Assessment Methods	Release Date	Submission Date	Learning Outcomes					
	PART B: Fundamentals of Leadership			1	2	3	4	5	
	Short-Answer & Multiple - Choice Test 4 (3%)								
5	Short-Answer & Multiple - Choice Test 5 (3%)	18/03/21 (5pm)	22/03/21 (5pm)	-	-	-	<input type="checkbox"/>	<input type="checkbox"/>	
<b>6</b>	<b>Revision Week</b>								
7	Short-Answer & Multiple - Choice Test 6 (3%)	01/04/21 (5pm)	06/04/21 (5pm)	-	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8	Homework Assessment 2 (15%) Short-Answer & Multiple - Choice Test 7 (3%)	08/04/21 (5pm)	12/04/21 (5pm)	-	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9	Short-Answer & Multiple - Choice Test 8 (3%)	15/04/21 (5pm)	19/04/21 (5pm)	-	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10	Class Exams/Oral assessments (32%) Active Contribution to tutorial and seminar (14%)	Details will be notified in Week 8		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

## Teaching Strategies

The entire course will be delivered in person and online lectures and workshops (recorded lectures will be available).

## Learning in this course

1. Students are expected to learn from the lectures every week, contribute to the weekly workshops and sit for class quizzes every fortnight and an oral examination. Therefore, the students are required to attend all workshops and oral assessments/class exams.
2. The students are required to prepare in advance for their weekly group discussion and must *reflect on the content that they have learnt*.
3. Students will increase their knowledge of the core material by reading the prescribed resources in addition to attending lectures/tutorials/seminars. Reading additional texts will further enhance their learning experience and will assist their preparation for assessments.
4. The course will promote group learning via discussions, both during class and in workshops.
5. The students will be required to undertake adequate self-directed study every week during the term, to prepare for the workshops, class quizzes and oral exams.

## Assessment

Assessment task	Weight	Due Date	Course Learning Outcomes Assessed
1. Class Quiz1, Class Quiz2 and Class Quiz 3	24%	Not Applicable	1, 2, 3, 4, 5
2. Seminars and tutorials	56%	Not Applicable	1, 2, 3, 4, 5
3. Oral Exam	20%	Not Applicable	1, 2, 4, 5

### Assessment 1: Class Quiz1, Class Quiz2 and Class Quiz 3

**Assessment length:** 40 minutes each

**Deadline for absolute fail:** Week 3 for Quiz 1, Week 5 for Quiz 2 and Week 10 Quiz 3

**Marks returned:** Week 2, Week 5 and Week 10

Class Quiz 1 covering the course content, weeks1-3

Class Quiz 1 covering the course content, weeks 3-6

Class Quiz 1 covering the course content wee 6-9

### Assessment criteria with marking rubric

Criteria	Fail	Pass	Credit	Distinction	High distinction
Understanding of Ethical Dilemmas, Choices, and Codes of Ethics	Inability to explain the basic notions of Ethical Dilemmas, Choices, and Codes of Ethics.	Explain the basics of Ethical Dilemmas, Choices, and Codes of Ethics.	Explain the deeper understanding of Ethical Dilemmas, Choices, and Codes of Ethics through definitions.	Explain Ethical Dilemmas, Choices, and Codes of Ethics through hypothetical examples	Ethical Dilemmas, Choices, and Codes of Ethics through real-world examples
Understanding of moral frameworks for Engineering Ethics; Safety and Risks.	Inability to explain the basic notions of Moral frameworks for Engineering Ethics; Safety and Risks.	Explain the basics of Moral frameworks for Engineering Ethics; Safety and Risks.	Explain the deeper understanding of Moral frameworks for Engineering Ethics; Safety and Risks.	Explain Moral frameworks for Engineering Ethics; Safety and Risks through hypothetical examples.	Explain Moral frameworks for Engineering Ethics; Safety and Risks through real world examples.

### Assessment 2: Seminars and tutorials

**Marks returned:** At the end of the week the workshop/tutorial is held.

The workshops will use published case studies and analyse them to determine the ethical issues that have not been addressed. Then discuss whether, the assessment provided by the case study is correct, and if correct, how one could have addressed these issues. If they are incorrect, discuss why they are incorrect.

### **Assessment criteria**

The ability to analyse a given problem and identify potential ethical issues. Present the results to a group, and discuss your findings and point of view.

The ability to work in a group and contribute to group discussions.

The ability to summarise the collective opinions of a group and present them to a wider group as required.

### **Assessment 3: Oral Exam**

**Assessment length:** 15 - 30 minutes

**Deadline for absolute fail:** Not Applicable

The oral exam will be an individual assessment and will be held during Week 10. It will cover all content from Weeks 1-9, and marks will be assigned based on the understanding of the topics tested, understanding and application of key ethics and leadership ideas, and the detail and correctness of case study analyses. It is mandatory that a student passes the oral assessment to pass the course.

### **Assessment criteria**

Demonstration of mastery of the concepts covered in the lectures.

## **Attendance Requirements**

Students are strongly encouraged to attend all classes and review lecture recordings.



## Resources

### Prescribed Resources

No prescribed resources

### Recommended Resources

#### Reference books

Lecture material will mostly be based on

- *Charles E. Harris, Michael S. Pritchard, Michael J. Rabins, Ray James, and Eline Englehardt, Engineering Ethics: Concepts and Cases, Wadsworth, Boston, MA, 2014*

Good books to read:

- *Mike W. Martin and Roland Schinzinger, Ethics in Engineering, 4th Edition, McGraw-Hill, NY, 2005*
- *Charles B. Fleddermann, Engineering Ethics, Fourth Edition, Pearson, 2012*

### Additional Resources

- [Engineering Ethics in Practice: A guide for Engineers](#) - Royal Academy of Engineering UK
- [Code of Ethics and Guidelines on Professional Conduct](#) - IEAust
- [Engineering Ethics: Concepts and Cases \(Electrical Engineering Cases\)](#) - NSF Workshop Cases
- [Markkula Centre for Applied Ethics: Technology Ethics Cases](#) - Santa Clara University
- P. G. Northouse, *Leadership Theory and Practice*, 4th edition, Sage Publications, 2016
- E Gundling & C Williams, *Inclusive Leadership: From Awareness to Action*, Aperian Global, 2019
- Quick Guide to Unconscious Bias – <http://tiny.cc/UBQuickGuide>

## Course Evaluation and Development

Class survey in week 6.

## Laboratory Workshop Information

### GOALS

Through this training, we want teams to:

- Discuss the ethical challenges you face as engineers in the work you do every day
- Walk through what happens when a similar issue surfaces, including what managers and the team should do.
- Consider the alignment of your daily decisions with the core values of your organization.
- Think through ways your team can work better together.

- Talk about the resources available to your team to ask questions, seek guidance, or raise a concern.

## **SESSION OVERVIEW & TIMING**

### *Overview*

We suggest that you allocate 15 minutes of time for the following activities. The case studies will **ONLY be made available at the beginning of the workshop.**

- Introduce the case study by read the case aloud to the whole group.
- Work through the sets of discussion questions.
- Make sure each group selects a leader for the workshop. The leaders should be rotating every week.

### *Individual group discussions*

We suggest you allow 60 minutes of time. The objectives will be as follows:

- The group to discuss the set of questions
- Come to a collective decision
- Make a presentation (Max 8 mins) that articulates the reasons for the decisions
  - Should include one engineering ethics case which has relevance to the problem discussed from the NPSE cases.

### *Presentation*

Assuming 6 groups, 8 mins presentation with 2 mins change over time, a total of 60 mins.

- The Team leader of the week presents the group's work
- Each group member anomaly rates the contribution of the group members' performance within the group.

### *Marking Scheme*

- Each group marks the other group's presentation: weight 40%
- Tutors mark the presentations: weight 60%
- Each member of the group gets a mark based on the group's anonymous performance rating

GSOE9510 will use an online system for anonymous intra-group rating. The links will be provided at the beginning of the workshops.



## **Academic Honesty and Plagiarism**

### **Academic Honesty and Plagiarism**

Plagiarism is the unacknowledged use of other people's work, including the copying of assignment works and laboratory results from other students. Plagiarism is considered a form of academic misconduct, and the University has very strict rules that include some severe penalties. For UNSW policies, penalties and information to help you avoid plagiarism, see <https://student.unsw.edu.au/plagiarism>. To find out if you understand plagiarism correctly, try this short quiz: <https://student.unsw.edu.au/plagiarism-quiz>.

### **General Conduct and Behaviour**

Consideration and respect for the needs of your fellow students and teaching staff is an expectation. Conduct which unduly disrupts or interferes with a class is not acceptable and students may be asked to leave the class.

## Academic Information

### COVID19 - Important Health Related Notice

Your health and the health of those in your class is critically important. You must stay at home if you are sick or have been advised to self-isolate by [NSW health](#) or government authorities. **You will not be penalised for missing a face-to-face activity due to illness or a requirement to self-isolate.** We will work with you to ensure continuity of learning during your isolation and have plans in place for you to catch up on any content or learning activities you may miss. Where this might not be possible, an application for fee remission may be discussed.

If you are required to self-isolate and/or need emotional or financial support, please contact the [Nucleus: Student Hub](#). If you are unable to complete an assessment, or attend a class with an attendance or participation requirement, please let your teacher know and apply for [special consideration](#) through the [Special Consideration portal](#). To advise the University of a positive COVID-19 test result or if you suspect you have COVID-19 and are being tested, please fill in this [form](#).

UNSW requires all staff and students to follow NSW Health advice. Any failure to act in accordance with that advice may amount to a breach of the Student Code of Conduct. Please refer to the [Safe Return to Campus](#) guide for students for more information on safe practices.

### Dates to note

Important Dates available at: <https://student.unsw.edu.au/dates>

## Student Responsibilities and Conduct

Students are expected to be familiar with and adhere to all UNSW policies (see <https://student.unsw.edu.au/policy>), and particular attention is drawn to the following:

### Workload

It is expected that you will spend at least **15 hours per week** studying a 6 UoC course, from Week 1 until the final assessment, including both formal classes and *independent, self-directed study*. In periods where you need to complete assignments or prepare for examinations, the workload may be greater. Over-commitment has been a common source of failure for many students. You should take the required workload into account when planning how to balance study with employment and other activities.

### Attendance

Regular and punctual attendance at all classes is expected. UNSW regulations state that if students attend less than 80% of scheduled classes they may be refused final assessment.

### Work Health and Safety

UNSW policy requires each person to work safely and responsibly, in order to avoid personal injury and to protect the safety of others.

## Special Consideration and Supplementary Examinations

[You must submit all assignments and attend all examinations scheduled for your course.](#) You can apply for special consideration when illness or other circumstances beyond your control interfere with an assessment performance. If you need to submit an application for special consideration for an exam or assessment, you must submit the application **prior to the start** of the exam or before the assessment is submitted, except where illness or misadventure prevent you from doing so. Be aware of the “fit to sit/submit” rule which means that if you sit an exam or submit an assignment, you are declaring yourself well enough to do so and cannot later apply for Special Consideration. For more information and how to apply, see <https://student.unsw.edu.au/special-consideration>.

## Administrative Matters

On issues and procedures regarding such matters as special needs, equity and diversity, occupational health and safety, enrolment, rights, and general expectations of students, please refer to the School and UNSW policies:

<https://student.unsw.edu.au/guide>

<https://www.unsw.edu.au/engineering/our-schools/electrical-engineering-telecommunications/student-life/resources>

## Disclaimer

This Course Outline sets out description of classes at the date the Course Outline is published. The nature of classes may change during the Term after the Course Outline is published. Moodle should be consulted for the up-to-date class descriptions. If there is any inconsistency in the description of activities between the University timetable and the Course Outline (as updated in Moodle), the description in the Course Outline/Moodle applies.

## Image Credit

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- Quick Guide to Unconscious Bias – <http://tiny.cc/UBQuickGuide>

## **CRICOS**

CRICOS Provider Code: 00098G

## **Acknowledgement of Country**

We acknowledge the Bedegal people who are the traditional custodians of the lands on which UNSW Kensington campus is located.